6.0 PROPOSED CLEANUP ALTERNATIVES

6.1 Cleanup Action Objectives

The primary cleanup action objective for the City Parcel Site is to prevent dermal contact with or ingestion of PCB-contaminated soils.

A secondary cleanup objective is to reduce any future potential for the migration of PCBs from soil to ground water.

6.2 Estimated Volumes of PCB Contaminated Soils

Contaminated soils at this Site include surface soils, and soils associated with the two dry wells and the underground storage tank. Table 3 presents volume calculations for soils with greater than 10 mg/kg PCBs. Volumes are calculated for surface soils above 10 mg/kg PCBs for the parking lot, the alleyway, the south side of the building, and underneath the building. Approximate volumes of contaminated soil as a result of the removal of dry wells DW1 and DW2, and the underground storage tank are included.

The calculations in Table 3 assume that for surface soils, PCB concentrations do not exceed 10 mg/kg beyond 2 feet below ground surface. The percentages of soil exceeding 10 mg/kg for the 0 - 1 foot depth and the 1 - 2 feet depth are approximated based on the RI results. The volume of surface soils above 10 mg/kg PCBs concentration underneath the building is based on the assumption that the contaminated soils underneath the building are located in the northern and eastern addition areas (aerial photographs show that transformers were placed in these areas before the building expansions).

6.3 Federal Regulations Governing Site PCB Remediation

The Toxic Substance Control Act (TSCA) is the major federal law pertinent to the City Parcel Site. TSCA as codified in 40CFR 761 establishes prohibitions of and requirements for the manufacture, processing and distribution in commerce, use, disposal, storage, and markings of PCBs and PCB items in the United States after January 1, 1978. TSCA regulations of importance to this Site are found in 40 CFR Section 761.60 – 761.79, Subpart C: Storage and Disposal. These sections specify treatment, storage, and disposal requirements based on their form and concentration.

The provisions of TSCA (40CFR761) apply only to materials containing PCBs at concentrations of 50 mg/kg and above. There are three primary options for non-liquid PCBs at concentrations of 50 mg/kg or greater that are compliant with TSCA:

1. Incineration
2. Treatment equivalent to incineration
3. Disposal in a chemical waste landfill.

TSCA does not specify concentration limits for disposal of PCB-containing non-liquids (e.g., soils), but specifies that industrial sludges or dredged materials with PCB concentrations greater than 500 mg/kg may not be landfilled. The determination of whether contaminated materials should be considered a soil or an industrial sludge should be made site specifically consistent with the current process for classifying material subject to the land disposal restrictions as either a pure waste or a soil and debris contaminated with a waste.

Persons generating soils, sediments, or treatment residuals contaminated with PCBs in concentrations equal to or greater than 50 mg/kg must comply with TSCA generator requirements. These requirements include: notification to EPA of PCB-generating activities, shipment of regulated wastes using the Uniform Hazardous Waste Manifest, and disposal at a TSCA-approved disposal facility.

The TSCA regulations for storage requirements specify that materials with PCB concentrations of 50 mg/kg or greater must be destroyed or disposed of within one year after being placed in storage.

PCBs are not regulated as a hazardous waste under the Resource Conservation and Recovery Act (RCRA). However, if PCBs are mixed with hazardous wastes listed in RCRA, the mixture is subject to the RCRA waste regulations. RCRA is not applicable to the Site because there are no RCRA hazardous wastes.

6.4 State Regulations Governing PCBs

PCB wastes are also regulated by the Dangerous Waste Regulations, WAC 173-303 . The requirements of both the Dangerous Waste Regulations and TSCA must be met for any PCB waste. However, the Dangerous Waste Regulations typically exclude from regulation any waste regulated under TSCA.

Soils and other waste materials that have been contaminated with 2 mg/kg PCB or greater are regulated as W001 dangerous waste if the contamination resulted from the salvaging, rebuilding or discarding of transformers, capacitors, or bushings. These wastes may be excluded under the conditions in WAC 173-303-071(3)(k) and may also qualify for the conditional special waste exclusion waste under WAC 173-303-073. Otherwise, wastes with PCB concentrations between 2 and 50 mg/kg must be managed as dangerous wastes.

6.5 Summary of Feasibility Study Cleanup Alternatives

Remedial technologies that are applicable to PCBs in soils were evaluated in the Feasibility Study Report. An initial screening eliminated technologies that were not applicable to the Site based on criteria identified under MTCA. The technologies that were considered for implementation to Site soils were:

1. Institutional Controls/Deed Restrictions
2. Capping
3. In-situ Solidification/stabilization
4. Excavation/Off-site incineration
5. Excavation/Off-site disposal

These remedial technologies were assembled into cleanup alternatives. These alternatives are developed to present several options to sufficiently compare alternatives against one another.

Because soil cleanup levels are developed using industrial criteria, all alternatives will require institutional controls to limit access to the property and future uses. The following cleanup alternatives were presented in the Feasibility Study:

Alternative 1: Building Demolition, Capping, and Institutional Controls

Alternative 2: Building Demolition, In-situ Solidification/Stabilization, and Institutional Controls

Alternative 3: Deferred Building Demolition, Excavation, Off-site Disposal, and Institutional Controls

Alternative 4: Building Demolition, Excavation, Off-Site Disposal, and Institutional Controls

Alternative 5: Building Demolition, Excavation, Off-Site Incineration, and Institutional Controls

These alternatives were described at a conceptual level because actual quantities, dimensions, and engineering parameters will be determined in the remedial design phase. Cost figures were preliminary, order-of-magnitude estimates, which were developed primarily for the purpose of comparing remedial alternatives during the remedy selection.

PCB concentrations in the City of Spokane property are below the industrial cleanup level of 10 mg/kg. However, because industrial cleanup levels are used, the soils will have to be capped and maintained in accordance with 40 C.F.R. 761.61. The City's plan to pave the property will meet this requirement. Deed restrictions limiting site use is also required.

6.5.1 Alternative 1: Building Demolition, Capping and Institutional Controls

This alternative combines containment measures and institutional controls to reduce the risk of exposure to PCBs. Under this alternative, the building would be demolished and the underground storage tank, drywells DW1 and DW2, and the drain lines would all be removed. The contaminated soils would remain in place and would be covered with gravel. This alternative would include the following major elements:

- Building demolition;
- Removal of the underground storage tank, drywells DW1 and DW2, and drain lines;
- Incineration of PCB liquid and sediments;
- 12" gravel cap for the City Parcel property and the alleyway (the City of Spokane property will be capped by the City in a proposed development);
- Deed restrictions for the following properties:
  - City Parcel and City of Spokane properties limiting use to industrial; and
  - Alleyway to protect integrity of the gravel cap.
- Inspection and maintenance of the gravel cap to assure the long-term integrity of the cap.

The parking lot area of the City Parcel Property and the alleyway are already covered with gravel. Additional gravel may have to be added to make a 12" gravel cap.

6.5.2 Alternative 2: Building Demolition, In-situ Solidification/Stabilization, and Institutional Controls

This alternative makes use of in-situ solidification/stabilization to treat the PCBs in soil. Solidification agents would be mixed with the surface soils to a depth of 2 feet using a backhoe. The major elements of Alternative 2 are:

- Building demolition;
- Removal of the underground storage tank, dry wells DW1 and DW2, and drain lines;
- Incineration of liquid PCB and sediments;
- In-situ solidification/stabilization of soils in PCB-contaminated areas;
- Soil cover over solidified soils;
- Deed restrictions for the following properties:
  - City Parcel and City of Spokane properties limiting use to industrial; and,
  - Alleyway to protect integrity of the soil cap and the solidified soils,; and,
- Inspection and maintenance of the cap to assure the long-term integrity of the cap.

6.5.3 Alternative 3: Deferred Building Demolition, Excavation, Off-Site Disposal, and Institutional Controls

The major element of this alternative is the excavation of surface soils with PCB concentrations greater than 10 mg/kg. Soils with PCB concentrations greater than 10 mg/kg associated with the removal of DW1, DW2, and the underground storage tank would also be removed. The soils would be disposed off-site at a TSCA permitted landfill; the closest disposal facility is located in Arlington, Oregon approximately 215 miles from Spokane. Industrial cleanup levels would be met in the City Parcel property; the residential cleanup level of 1 mg/kg would not be met in the alleyway. Restrictive covenants would be required for the City Parcel and City of Spokane properties because

the PCB industrial cleanup level is used, and in the alleyway because residential cleanup level would not be attained.

Under this alternative, the building would remain in place and would be assumed to be removed sometime in the future. The removal of DW2, the underground storage tank, and the drain lines would take place prior to the building demolition. For purposes of cost calculations, the building would be assumed to be removed ten (10) years after the initiation of this alternative. Additional cleanup of contaminated soils that were underneath the building would take place after the building is removed.

The following are the major elements of this alternative:

- Removal of the underground storage tank, drywells DW1 and DW2, and drain lines;
- Incineration of liquid PCB and sediments;
- Excavation of surface soil above 10 mg/kg PCBs in the north parking lot area and in the alleyway;
- Excavation of soils above 10 mg/kg PCBs associated with the removal of the dry wells and the underground storage tank;
- Off-site disposal of soil in a TSCA-permitted landfill.
- Backfilling with clean soil
- Deed restrictions for the following properties:
  - City Parcel property limiting the use to industrial, maintaining the integrity of the soil cap, and requiring the excavation and off-site disposal of contaminated soils underneath the building when the building is removed;
  - City of Spokane property limiting Site use to industrial; and,
  -Alleyway to protect integrity of the soils cap; and
- Building removal with additional soil cleanup in year 10.

6.5.4 Alternative 4. Building Demolition, Excavation, Off-Site Disposal and Institutional Controls

The major elements of this alternative are the following:

- Building demolition
- Limited soil sampling
- Removal of the underground storage tank, drywells DW1 and DW2, and drain lines;
- Off-site incineration of liquid PCB and sediments;
- Excavation of surface soil above 10 mg/kg PCBs in the City Parcel property and in the alleyway;
- Excavation of soils above 10 mg/kg PCBs associated with the removal of the dry wells and the underground storage tank;
- Off-site disposal of soil in a TSCA-permitted landfill;
- Backfilling with clean soil; and,

- Deed restriction for the following properties;
  - City Parcel and City of Spokane properties limiting the site to industrial use;
  - Alleyway to maintain integrity of the soil cap.

6.5.5 Alternative 5: Building Demolition, Excavation, Off-Site Incineration, and Institutional Controls

This alternative will consist of the following:

- Building demolition.
- Limited soil sampling.
- Removal of the underground storage tank, drywells DW1 and DW2, and drain lines;
- Excavation of surface soil above 10 mg/kg PCBs in the City Parcel property, and in the alleyway;
- Excavation of soils above 10 mg/kg PCBs associated with the removal of the dry wells and the underground storage tank;
- Off-site incineration of soil, liquid PCBs, and sediments;
- Backfilling with clean soil;
- Deed restriction for the following properties:
  - City Parcel and City of Spokane properties limiting the site to industrial use.
  - Alleyway to maintain integrity of the soil cover.